REMARKS

[0001] Claims 1-27 are pending. The Office Action mailed 3/10/2006 (hereinafter "Office Action") rejected claims 1-27 under 35 U.S.C. § 102(b) as being anticipated by Selkirk, et al., U.S. Patent No. 2002/0053009 (hereinafter "Selkirk"). The Examiner approved the drawings and considered the Information Disclosure Statement submitted 11/14/2003.

AMENDMENTS TO THE DRAWINGS

[0002] Figure 4 is amended to add a label of "410" to the lookup table to be consistent with paragraphs 67-69 of the specification. In addition, address "0x520" is changed to "0x510" to be consistent the example in paragraph 72 of the specification. Figure 4 is labeled with "Replacement Sheet."

AMENDMENT OF CLAIMS 1, 3-5, 7, AND 10-26

[0003] Claims 1, 3-5, 7, and 10-26 have been modified to more distinctly point out the features of the present invention. Claim 27 is cancelled and Claim 28 is new. The Applicants assert that the modified claims and new claim are fully supported by the specification and drawings.

REJECTION OF CLAIMS 1-27 UNDER 35 U.S.C. §102(b)

[0004] The Examiner rejected claims 1-27 under 35 U.S.C. §102(b) as being anticipated by Selkirk. The Applicants respectfully traverse this rejection. "Anticipation under 35 U.S.C. §102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention. ...Whether such art is anticipating is a question of fact." *Apple Computer, Inc. v. Articulate Systems, Inc.* 234 F.3d 14, 20, 57 USPQ2d 1057, 1061 (Fed. Cir. 2000). It is well settled that under 35 U.S.C. §102 "an invention is anticipated if . . . all the claim limitations [are] shown in a single art prior art reference. Every element of the claimed invention must be literally present, arranged as in the claim. The identical invention must be shown in as complete detail as is contained in the patent claim." Richardson v. Suzuki Motor Co., Ltd., 9 U.S.P.Q.2d

1913, 1920 (Fed. Cir. 1989). In determining whether a prior art reference anticipates a claim, it is necessary to (1) determine the scope of Applicant's broadest claim, (2) determine exactly what the single prior art reference discloses, and (3) compare each and every claim limitation against the prior art disclosure. SSIH Equipment, S.A. v. U.S Int'l Trade Commission et al., 218 U.S.P.Q. 678, 688. Only if each limitation is literally disclosed by the prior art reference is the claim anticipated.

[0005] Initially, it may be useful to review the invention described in the application and the disclosures of the prior art. In general, the application describes a way to manage incremental storage. Application of Burton, et al., filed November 14, 2003 (hereinafter "Application") at Abstract. The prior art describes a log-based incremental storage system. *Id.* at ¶ 4, Fig. 1. The system includes a host 110 in communication with a primary volume 120, through a file system 112, for storing data. *Id.* at ¶¶ 4, 5, Fig. 1.

[0006] The host 110 periodically backs up data from the primary volume 120 to a baseline volume 170. *Id.* at ¶ 6, Fig. 1. Between creating full backup copies of the data to the baseline volume 170, a replication module 130 copies incremental changes made to data on the primary volume 120 to a storage volume 150 and creates an entry in an incremental log 140. *Id.* at ¶¶ 6, 7, Fig. 1. The incremental log 140 may comprise a look-up table or the like to correlate a virtual address of incremental data to a physical address in the storage volume. *Id.* at ¶ 7, Fig. 1. The problem with the prior art system is that the space allocated for incremental storage may not be adequate because too much space is allocated or not enough space is allocated. *Id.* at ¶ 8. What is needed is dynamic storage for incremental data that may change based on the amount of data stored. *Id.* at ¶ 9.

[0007] The present invention may be applied to a system that includes a host 210, one or more primary volumes 220, at least one baseline volume 170, a replication module 230, an incremental log 250, and a storage pool 260 with storage volumes 262a, b. *Id.* at ¶ 39, Fig. 2. As with the prior art, the replication module 230 stores incremental data from a primary volume 220, in between backups to the baseline volume 170, and an entry for the incremental data is stored in an incremental log 250. *Id.* at ¶¶ 40, 46, Fig. 2. A significant advantage of the claimed invention

over the prior art is that incremental data may be stored in a storage pool 260, which may grow or shrink as necessary. *Id.* ¶ at 41, Fig. 2.

[0008] A policy management module 212 sets a storage management policy regarding storage capacity of the storage pool 260. *Id.* at ¶ 52, Fig. 2. A storage pool management module 240 monitors available storage capacity of the storage pool 260 and changes the storage capacity of the storage pool 260 based on the storage management policy and utilization of storage in the storage pool 260. *Id.* at ¶¶ 51-53. The storage pool management module 240 changes the capacity of the storage pool by allocating or de-allocating storage volumes to the storage pool 260 as a virtual volume. *Id.* De-allocated storage volumes 262b may be re-allocated by another virtual volume. *Id.* at ¶ 51.

[0009] A user may elect to allow the storage pool management module 240 to automatically change the capacity of the storage pool 260 or to have the storage pool management module 240 prompt the user in response to allocation criteria fulfillment. *Id.* at ¶ 54. The user may then take action to instruct the storage pool management module 240 to allocate or de-allocate storage volumes 262 to the storage pool 260. *Id.* at ¶ 55. A read module 270 provides an alternative access path to the incremental data stored on the storage pool 260 for general purpose use or for retrieving data in case of a failure. *Id.* at ¶ 47.

[0010] By contrast, Selkirk teaches a method for creating an instant copy of data in a dynamically changeable virtual mapping environment. Selkirk at Abstract. Selkirk provides a system for dynamically changing virtual mapping in a data processing system. *Id.* at ¶ 10. Selkirk separates processing of data unit requirements from the selection of which storage subsystems to use for storage by using a storage methodologies inventory. *Id.* A plurality of data storage elements are functionally coupled to hosts. *Id.*

[0011] The data storage elements are organized using a plurality of layers of mapping tables which provide unique identification of the location of the data so that individual entries in a mapping table are variable and self-defining with respect to the managed data. *Id.* Selkirk also provides several instant copy mechanisms for copying data upon receiving a write operation.

Id. at ¶ 11. While Selkirk deals with virtual mapping of storage, Selkirk is not directed to backup methods or incremental backup methods.

[0012] With regard to Claim 1, Selkirk does not teach an incremental backup system. Selkirk does not teach a storage pool configured as a virtual volume comprising storage volumes and configured to store incremental storage data. Selkirk does not teach a policy management module configured to set a storage management policy for available storage capacity of a storage pool. Selkirk does not teach a storage pool management module configured to monitor the capacity of the storage pool and to change the capacity of the storage pool based on the available storage capacity of the storage pool.

[0013] Selkirk does not teach allocating and de-allocating storage volumes to the storage pool in response to the change to the storage capacity. Selkirk does not teach an incremental log that maps a virtual address assigned to the incremental storage data to a physical storage address of the storage volumes of the storage pool. The Applicants respectfully assert that Selkirk does not teach all of the limitations of Claim 1 and therefore assert that Claim 1 is in condition for allowance. With regard to independent Claims 12, 16, 23, 24, and 28, the arguments of Claim 1 apply equally and the Applicants assert that Claims 12, 16, 23, 24, and 28 are in condition for allowance.

[0014] Claims 2-11 depend on Claim 1, Claims 13-15 depend on claim 12, Claims 17-22 depend on Claim 17, and Claims 25 and 26 depend on Claim 24. Because the Applicants believe that Claims 1, 12, 16, 23, 24 are patentable over Selkirk, the Applicants respectfully assert that claims 2-11, 13-15, 17-22, 25, and 26 are similarly in condition for allowance because they depend from allowable claims. See, *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Should additional information be required, the Examiner is respectfully asked to notify The Applicants of such need. If any impediments to the prompt allowance of the claims can be resolved by a telephone conversation, the Examiner is respectfully requested to contact the undersigned.

Respectfully submitted,

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